DOCUMENT RESUME

ED 334 917 HE 024 753

AUTHOR Hudson, J. Blaine
TITLE The Impact of Minimum Admission Standards: 1986-1989.
INSTITUTION Louisville Univ., KY. Preparatory Div.
PUB DATE 5 Mar 90
NOTE 47p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Academic Persistence; *Access to Education; *Admission Criteria; *College Admission; College Entrance Examinations; College Freshmen; Educationally Disadvantaged; Higher Education; *Open Enrollment; Prediction; Racial Differences; School Policy; Scores; *Selective Admission; Student Placement; Tutoring
IDENTIFIERS *University of Louisville KY

ABSTRACT

The University of Louisville (Kentucky) adopted a policy of using American College Test (ACT) scores and high school grades as admission criteria, while allowing students who did not qualify an opportunity to demonstrate their actual level of preparation through additional testing and an interview. This study of 508 minimum admission applicants assessed the degree to which the university remained accessible to students not meeting grade and test score criteria and the degree to which access translated to legitimate educational opportunity. Findings indicated that ending open admissions did not close the University to academically disadvantaged students, but did create a number of obstacles to their admission. The requirements and conditions attached to this group deterred many applicants from pursuing admission; despite special efforts to encourage these students to proceed with the testing/interview option, nearly half failed to respond. Black students made up 50 percent of the group admitted under the special route though blacks make up 10 percent of the University's enrollment. The study also found that ACT scores did not match placement test scores; counseling and tutorial support enhanced student performance; and retention rates were comparable to other students from the Preparatory Division, a section of the university offering courses and programs for under-prepared students. (Includes approximately 60 references.) (JB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J. BLAINE HUDSON

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Table of Contents

I. Introduction. 3

II. Design of the Study 7

III. The Minimum Admissions Policy and Process 8

IV. Profile of Minimum Admissions Applicants 10

V. Impact of Pre-Admission Practices 19

VI. Academic Performance and Retention Patterns 21

VII. Impact of Post-Admission Services 31

VIII. Predicting Admission, Academic Performance and Retention . . 33

IX. Conclusion and Summary 40

References 42

I. Introduction

Education, as a social institution, can serve one of two broad purposes: the reproduction of the existing social order or the creation of a new social order. Apart from educating children and adults, educational institutions perform critical sorting and credentialing functions which control the flow of trained and acculturated individuals into the middle and upper reaches of the American social, economic and political structure. Consequently, in a highly stratified yet fluid society, educational institutions contribute either to the reduction of inequality by fostering social mobility---or to the maintenance of inequality by restricting social mobility. American higher educational institutions have tended to serve the latter purpose while espousing the former.

Mass educational institutions can maintain or reduce inequality through two principal means: by their power to determine who "gets in", i.e., admissions, and by their power to determine how students are treated if they "get in." Although this study will focus on the admissions issue, current university and state-wide admissions policies cannot be understood fully or evaluated fairly outside the larger national and historical contexts. For those interested in exploring this topic in greater depth, a selected "Reference" section has been appended to this report.

Before World War II, most American colleges and universities were open to virtually any student who had completed high school and could afford the cost of tuition. By custom and by law, these students were predominantly white and male. As financial and legal barriers were removed through court decisions and legislative programs such as the G. I. Bill of Rights (1943), the National Defense Education Act (1957) and the Higher Education Assistance Act (1972), these institutions came under increasing pressure to accommodate groups previously excluded from, or allowed only a token presence on, American college campuses, e.g., blacks and other minorities, women, older students, and the economically disadvantaged. This pressure was welcomed by some educators and resisted by others.

As a result, the direction of American higher education was influenced by two opposing philosophies through the 1960s and 1970s. The advocates of one position favored open access as a means of furthering democratization and pluralism. The advocates of the other argued that access should be limited as a means of maintaining quality and standards (however defined). By the 1980s, this pressure had been dissipated by the application of four overlapping strategies:

1) Raising high school graduation standards and expanding the use of standardized tests as measures of student progress and educational effectiveness;

2) The formulation of undergraduate admission policies relying heavily on standardized test scores, e.g., the Scholastic Aptitude Test (SAT) and the American College Test (ACT), and the partial accommodation (in four-year institutions), across racial, gender and socio-economic lines, of students deemed to be qualified on the basis of such tests;

3) A massive expansion of community/junior college system, and a reorientation of its mission, to accommodate students deemed "unqualified" or underprepared on the basis of such tests; and

4) Increasing the cost of university-level education relative to the declining dollar value of available student financial aid (as the Carnegie Commission recommended in the 1970s).

These essentially conservative educational reforms derived their claim to legitimacy from two fundamental assumptions: one, that standardized tests were valid (and measured something meaningful) and, the other, that educational opportunity could be expanded without substantially equalizing educational outcomes.

Since the beginning of this century, social scientists have produced a massive body of research on both 'sides' of the testing issue. Some have contended that intelligence and other "ability" constructs can be measured as "quantities", not "qualities", and that each individual is born with a fixed "amount." Others have argued that the operations of the human mind are varied and complex, and that individual differences in intelligence result from equally complex interactions over time between each individual and his/her environment. This debate has been further complicated by the existence of deeply embedded cultural stereotypes regarding the intellectual capacities of non-whites, women and "the poor."

No researcher has argued that standardized group aptitude and intelligence tests measure nothing. The debate has turned on questions related to what such instruments measure, whether what they measure has any meaning or significance, whether they measure it accurately, and how such measurements should be interpreted and used. One group has argued that the tests measure what they purport to measure. The other has asserted that tests can be designed to measure

whatever the "test-makers" wish to measure and that most tests simply reflect the degree to which students have been educated and/or their familiarity with the nuances of the prevailing culture---not the degree to which they can be educated in the future.

This "nature" versus "nurture" controversy has been far more than a sterile debate on the merits of academic research. From the use of the Army Intelligence Tests (World War I) to support racial stereotypes, separate and unequal education for non-whites and limitations on immigration from Central and Eastern Europe, through the development of the "testing" and "guidance" movements, to the use of "scientific" data by the Nixon, Ford and Reagan Administrations (particularly the Coleman Report, the works of Jensen and Jencks) to justify dismantling the Great Society Programs of the 1960s---this has been, fundamentally, a political issue. However, while the bulk of the credible research either supports the contentions of the "nurture" position or confirms neither position, the "nature" position won in the political arena and many of its basic assumptions have gained acceptance as facts.

Given the role of higher education in a post-industrial society, this controversy has had profound implications with respect to educational opportunity as a means to upward social mobility. By using standardized tests on which minority students, women and the poor have scored, historically, below the score levels of white, middle-class males ---and by using such tests as indicators of academic preparation or ability in admissions policies---many groups of students have been diverted into other educational channels or out of post-secondary education altogether. The declining representation of non-whites and the economically disadvantaged in four-year institutions attests to the consequences of this strategy. Thus, if education serves an inherently political purpose, admissions policies are essentially political statements.

With respect to admissions standards, the University of Louisville has followed a pattern similar to that of other private and public universities. As a private and semi-private institution, the University moved from an implicitly to an explicitly selective admissions policy. On becoming a fully public institution in 1970, the University adopted "open admissions." However, after years of internal debate, focusing on many of the issues summarized above, the University returned to a more selective admissions policy on May 20, 1985---consistent with state requirements.

Because of the University's urban mission, the educational needs of its service area, and the fact that the University had no community college (to which to redistribute enrollment), the University's minimum admissions stan-

dards embodied a "mixed model", i.e., a pragmatic compromise between the two opposing philosophical positions. Since its implementation in Fall 1986, this policy (see Section III) has used high school grades and ACT scores as admission criteria, but has allowed students (who did not satisfy the high school grade and ACT requirements) an opportunity to demonstrate their actual level of preparation through additional testing and an interview.

Given this conceptual framework, the purpose of this research project is to assess the impact of the minimum admissions standards (or MAS) as follows:

1) To describe and analyze the characteristics of "minimum admissions students", i.e., students who could gain admission only through the testing/interview process;

2) To describe and assess the impact of the MAS process;

3) To describe and analyze the academic performance and retention patterns of MAS students admitted to the University;

4) To describe and analyze the impact of special pre- and post-admission efforts on behalf of MAS students;

6) To examine, insofar as available data will permit, the validity of assumptions regarding academic ability and/or potential based on high school grades and standardized tests.

In summary, this project will assess the degree to which the University remained open after the adoption of selective admission standards---and the degree to which access was translated into legitimate educational opportunity.

II. Design of the Study

Information analyzed in this study was obtained from the Office of Admissions for Processing and Orientation, the Office of the Registrar and Preparatory Division student records. This information included demographic (age, race, sex, residence), academic (high school grades, ACT scores), placement (English, Mathematics and Reading course placement), process-related (pre-admissions contact, admission status), performance (academic status by term), service utilization (counseling/advising and tutoring attendance), and retention variables for all MAS students who applied for admission to the University for the Fall 1986 through Fall 1989 semesters.

As will become evident in Section III, both the minimum admissions process and the availability of complete data sets varied during the period under examination. Some missing data on Fall 1986 and Spring 1987 applicants could not be recovered. Summary information provided by the Office of Admissions will be cited where appropriate.

These data were entered, on a student by student basis, in a data-base constructed for the purpose of this study and subjected to statistical analysis using SPSS-X. Numerous tables will be included, with an indication of how data should be read or interpreted, e.g., whether percentages should be read across rows or up/down columns. The results of various tests of statistical significance will be cited throughout the body of this report (including simple frequency distributions, correlations, Chi-square, Analysis of Variance, multiple regression and discriminant analysis).

In most cases, only the significance level will be noted (as opposed to the Chi-square value, F-ratio, etc.). These significance levels refer to the probability that a difference in or between two variables, or a relationship between a dependent variable and a cluster of independent variables, could have occurred by chance. A significance level of less than .05 indicates that there is less than one chance in twenty that a difference could have been random or insignificant; a level of .01 indicates that there is less than one chance in one hundred. Consequently, the lower the reported significance level, the more likely that the difference or relationship is meaningful---and not a reflection of an extreme of the normal distribution of scores, values or characteristics in the same population.

III. The Minimum Admissions Policy and Process

The impact of the minimum admissions standards cannot be understood fully without a working knowledge of some details of both the policy and the process by which it was implemented. As a brief overview, the Policy on General Admission to the University of Louisville specifies that students are admissible to the University if they satisfy any one of the following criteria (effective Fall 1986):

1) a high school grade point average of at least 2.25, or

2) a composite ACT score of at least 12 (or 16 on the Enhanced ACT), or

3) satisfactory performance on diagnostic tests in reading, mathematics and writing, and a personal interview to assess motivation.

Students who satisfied the first and/or second MAS requirements could be admitted routinely and assigned to the appropriate enrollment unit (based on that unit's admission policy and/or the aspirations of the student). Students required to demonstrate their admissibility through testing and an interview could be admitted only through a different process and, if admitted, were assigned to the Preparatory Division.

When the University's Board of Trustees approved the current policy, a "Codicil of Interpretation", which outlined how the testing/interview requirement was to be satisfied, was also approved. While the minimum admissions policy has not changed since the Board's action in 1985, the practices and criteria used to implement the "Codicil" have changed significantly.

From Fall 1986 through Summer 1988, MAS applicants could be denied admission solely on the basis of ACT English and Mathematics sub-test scores. MAS students who qualified for further testing were required to test at or above the seventh grade level in Reading and to test into English 099 and Math 099. Students who failed to place at or above the requisite level on any one of the placement tests were denied admission.

Once admitted, MAS students had one calendar year to complete English 099, Math 099 and all required Reading courses (if they had not "tested out"). Students who did not satisfy these performance requirements were subject to dismissal, without appeal, regardless of their overall academic standing.

In February 1987, the University Provost requested that the Preparatory Division work with the Office of Admissions to increase the number of MAS applicants who pursued admission. In response, a pre-admission contact process was devised which included sending each MAS applicant a letter, followed by a telephone call, from the Division. This pre-admission contact process was implemented for Summer 1987.

In July 1988, after several months of discussion, the University Provost approved several modifications in the MAS implementation process. While the minimum grade equivalent in Reading was not changed, students who placed in English 098 and Math 075 (courses one level lower than English 099 and Math 099) could be admitted---if they scored above specific cut-offs on the English and Mathematics placement tests. The use of ACT sub-test score cut-offs was discontinued. In addition, the interview was restructured to allow for the joint participation of a Preparatory Division representative and an Admissions Counselor. Furthermore, because these changes would permit the admission of students with more pronounced academic deficiencies, the Division developed a special post-admission support program which included intensive academic advising and counseling, tutoring, referral and follow-up services.

Finally, in July 1989, the University Provost approved a reinterpretation of the one year time frame within which MAS students were expected to complete all pre-college level requirements. The one year period would remain in force both as an expectation and as a basis for placement testing criteria. However, once admitted to the University, Preparatory Division academic policies alone would determine the academic status of MAS students (until they transferred from the Division).

Consequently, while the Fall 1986 through Fall 1989 MAS population was "one" population, it was also several similar sub-populations---admitted based on somewhat different criteria and treated with varying levels of encouragement and support.

IV. Profile of Minimum Admissions Applicants

From Fall 1986 through Fall 1989, 606 students applied to the University with high school grade averages below 2.25 and with ACT composite scores (on the "old ACT") below 12. Table I reflects the distribution of these students, by semester of application, across admissions categories:

Table I.

Minimum Admissions Application and Admission Patterns
(Row%)

	No Response	/%	Denied	/%	Admitted	/%	Total
Fall 1986	69	56.1	33	26.8	21	17.1	123
Spring 1987	8	30.8	10	38.4	8	30.8	26
Summer 1987	2	50.0	2	50.0	0	0.0	4
Fall 1987	62	53.9	25	21.7	28	24.4	115
Spring 1988	11	47.8	6	26.1	6	26.1	23
Summer 1987	2	66.7	0	0.0	1	33.3	3
Fall 1988	62	52.1	14	11.8	43	36.1	119
Spring 1989	16	42.1	8	21.1	14	36.8	38
Summer 1989	4	57.1	0	0.0	3	42.9	7
Fall 1989	69	46.9	33	22.4	45	30.6	147
Total	305	50.3	132	21.8	169	27.9	606

Table I summarizes information provided by the Office of Admissions. However, much of the information on the first two groups of MAS applicants, primarily those who did not pursue admission, could not be reconstructed. More or less complete records were available on 508 (83.8% of the total) students.

The academic and demographic characteristics of MAS applicants, by semester of application, did not vary over time, with the exception that Fall semester applicants were consistently and significantly younger (Analysis of Variance = .00), i.e., that the most recent high school graduates were most likely to apply for Fall semester admission. As Table I indicates, a significant percentage (50.3) of MAS applicants chose, for a variety of reasons, not to pursue the admission process after being notified that their admissibility would be determined by further testing and an interview. The relative percentage of non-respondents decreased in each Fall semester since Fall 1986. Moreover, the percentage of students denied has generally decreased, with some fluctuations, and the percentage of students admitted has generally increased.

Table II presents a breakdown, by selected demographic and admissions categories, of the MAS population:

Table II.

Age, Race, Sex and Residence by MAS Category
(Row %)

	No Response/%		Denied/%		Admitted*/%		Total
Mean Age (N=483)	19.7		19.8		19.9		19.8
Sex** (N=506)							
Male	77	32.0	55	22.8	109	45.2	241
Female	114	43.0	58	21.9	93	35.1	265
Total	191	37.8	113	22.3	202	39.9	506

Table II., continued

	No Response/#	%	Denied/#	%	Admitted*/#	%	Total
Race (N=486)							
Black	77	32.0	66	27.4	98	40.6	241
White	95	40.4	40	17.0	100	42.5	235
Hispanic	4	66.7	2	33.3	0	0.0	6
Oriental	0	0.0	1	33.3	2	66.7	3
Nat. Amer.	0	0.0	1	100.0	0	0.0	1
Total	176	36.2	110	22.6	200	41.2	486
Residence (N=500)							
Local	134	36.6	80	21.9	152	40.5	366
Kentucky	31	37.3	21	25.3	31	37.3	83
Out-of-State	24	48.0	8	16.0	18	36.0	50
Foreign	0	0.0	1	100.0	0	0.0	1
Total	189	37.8	110	22.0	201	40.2	500

*: Includes students who were admitted to Continuing Studies or who re-took the ACT.

**: Chi-square = .05 or lower

There were no significant differences across admissions categories based on age or residence. However, female students, although more likely to apply, were less likely to pursue admission---and less likely to be admitted if they chose to pursue admission. Black students were more likely to pursue admission and more likely to be denied, although the number/percentage of black and white students admitted was comparable.

The representation of black students in the MAS applicant population (49.6%) was far greater than the percentage representation of blacks in both the University's total

applicant pool, its undergraduate student body (under 10%) and in the Preparatory Division (with an average of 30% black enrollment). Given the distribution of black students' scores on the ACT (national mean of 12-13 over time), and the use of the ACT as an MAS criterion, the probability of a higher incidence of convergence between comparatively low high school grades and comparatively low ACT scores was far greater for blacks than for whites. In other words, nearly half of all black high school graduates were potential MAS students based solely on the ACT criterion---compared to, at most, 10-15% of whites. Thus, while blacks may have been as likely as whites to earn high school grade averages below 2.25, blacks were far more likely to have ACT Composite scores below 12. As these figures indicate, had admissibility been based on grades and ACT scores alone, the MAS policy would have excluded a disproportionate number of black students. In essence, black students had a far greater "stake" in the MAS process.

Table III reflects the distribution of mean high school grades and ACT scores of MAS applicants:

Table III.

High School Grades and ACT Scores by MAS Category
(Row %)

	No Response	Denied	Admitted	Group
High School GPA	1.83	1.78	1.76	1.79
ACT				
English*	10.9	8.4	10.8	10.3
Math	6.1	5.2	7.0	6.3
Soc. Sci.*	7.7	7.1	8.2	7.8
Nat. Sci.	12.7	12.4	12.3	12.5
Composite*	9.5	8.4	9.8	9.4

*: Analysis of Variance = .05 or lower.

The MAS policy itself restricted the range of possible grade averages and ACT scores. Within this narrow range, the non-respondents had higher (although not significantly so) high school grades. Female students, in particular, had significantly higher grade averages than males (1.85 to 1.73, Analysis of Variance = .00). Out-of-state applicants had higher grade averages than in-state or local applicants. There were no differences based on race or the semester for which students applied.

There were no significant differences in ACT English scores based on race, age, residence, application term, or whether students did or did not pursue admission. Female applicants had significantly higher scores than did males (10.98 to 9.51, Analysis of Variance = .00)---even within this range. ACT Mathematics scores were generally low across all groups. However, younger applicants and students who chose to pursue admission had significantly higher scores. No other differences in Mathematics scores were significant.

There were no differences in ACT Social Science and Natural Science scores based on application term, sex, age or residence. However, black students reported significantly lower Natural Science scores (Analysis of Variance = .04) and students who chose not to pursue admission scored lower in both areas.

There were a number of significant differences based on ACT Composite scores in the MAS applicant population. Admitted students (Analysis of Variance = .00) had higher scores, black and foreign applicants (Analysis of Variance = .05) and males (Analysis of Variance = .07, nearly significant) scored lower.

As noted in Section III, MAS students who applied before July 1988 could be denied admission solely on the basis of ACT English and Mathematics sub-test scores. As a result, no information was available regarding how these students would have performed had they taken the placement tests. Students who met the sub-test score prerequisites were required only to take those placement tests still needed to determine admissibility (but, if admitted, were required to complete any remaining placement tests prior to registration). Moreover, a few students began, but did not complete, the testing/interview process. Table IV reflects all available placement test results by course level and admission category:

Table IV.

Course Placement by MAS Category
Fall 1986 - Fall 1989
(Row %)

	No Response/#	No Response/%	Denied/#	Denied/%	Admitted/#	Admitted/%	Total
English*							
ENG 101	0	0.0	2	7.7	24	92.3	26
ENG 099	6	4.3	21	15.0	113	80.7	140
ENG 098	0	0.0	36	50.0	35	49.3	71
Total	6	2.5	59	24.9	172	72.6	237
Mathematics*							
MATH 107	0	0.0	0	0.0	1	100.0	1
MATH 102	0	0.0	0	0.0	14	100.0	14
MATH 099	4	7.3	4	7.3	47	85.4	55
MATH 075	0	0.0	65	36.9	111	63.1	176
Total	4	1.6	69	28.0	173	70.4	246
Reading*							
Exempt	1	5.9	0	0.0	16	94.1	17
PREP 095	2	2.8	9	12.7	60	84.5	71
READ 099	2	1.6	29	22.7	97	75.7	128
READ 098	1	2.0	40	81.6	8	16.3	49
Total	6	2.3	78	29.4	181	68.3	265

*: Chi-square = .05 or lower.

In general, students who placed in the higher level Preparatory Division courses, or "tested out" of pre-college level work in one or more areas, were far more likely (Chi-square = .00 in all skill areas) to gain admission. However, due to the procedural changes implemented in July 1988, a much larger number of ENG 098 and MATH 075 students have been admitted in recent semesters. Only placement in READ 098 was likely to result in denial regardless of application term.

Course placement patterns in English did not differ on the basis of age or sex. However, black students tested more often into the lower level English courses (Chi-square = .02) and local residents tended to place more often in higher level courses. There were no differences based on age, race, sex or residence in Reading and Mathematics placement patterns.

The statistical relationship between high school grades, ACT scores and placement patterns is depicted in the following correlation matrix (Table V):

Table V.

Correlation Matrix: High School Grades, ACT Scores, and Placement Test Results (Fall 1986 - Fall 1989)

	ACTE	ACTM	ACTS	ACTN	ACTC	ENG	MATH	READ
High School GPA	.07	-.03	.01	-.05	-.01	-.02	.06	-.05
ACT English		-.05	.15*	-.01	.56*	.20*	.08	.27*
ACT MATH			-.14*	-.03	.37	.06	.16*	-.06
ACT Soc. Sci.				-.01	.40*	.15	.03	.32*
ACT Nat. Sci.					.50*	-.08	.05	.14
ACT Composite						.17*	.18*	.36*
English Placement							.15*	.34*
Math Placement								.02

*: Significant beyond the .05 level of confidence.

Other than the significant intercorrelations between the various ACT sub-test scores and the composite score, these measures, usually assumed to be closely related, were related randomly at best. The correlations between initial academic statistics and course placement were also much lower than those reported for the University's freshman population (in "An Analysis of ACT Scores, Placement Tests, and Academic Performance in Reading, English, and Mathemat-

ics Courses", July 1989). Even the ACT score intercorrelations were much weaker.

The final step in the MAS process involved a structured interview. Although a version of the CABI (College Autobiographical Inventory) was used, initially, for this purpose, it was discarded in July 1988 in favor of a more informal interview developed by the Preparatory Division and the Office of Admissions. The "motivation", "support systems" (i.e., family, friends) and "accomplishments" (academic or otherwise) of each student were evaluated on the basis of direct interaction with that student. For the purpose of this study, a 0-9 point scale was devised to quantify these evaluations. Although the number of MAS applicants so evaluated was small, the results (Table VI) reflected both what MAS applicants expressed and what experienced University professionals perceived:

Table VI.

Interview Assessment of Motivation and Academic Potential
(Row %)

	Motivation/Attitude						
	Poor (0-3)		Average (4-6)		Strong (7-9)		Total
Fall 1988	2	7.4%	13	48.1%	12	44.5%	27
Spring 1989	0	0.0%	10	83.3%	2	16.7%	12
Summer 1989	0	0.0%	2	100.0%	0	0.0%	2
Fall 1989	1	3.0%	21	63.7%	11	33.3%	33
Total	3	4.0%	46	62.2%	25	33.8%	74

As this Table indicates, most MAS students were assessed as having average to strong motivation and potential (mean = 5.95). There were no significant differences in motivation and perceived potential based on age, race, sex, high school grades, ACT scores or placement test patterns. However, students who lived outside Jefferson County and/or Kentucky tended to be more highly motivated (Chi-square = .05)---which might explain why they pursued the MAS process despite its obvious inconveniences. Although comparable data were not available on all MAS applicants, motivation or "attitude" seemed to have been strongly related to the

pursuit of admission, although not necessarily to admission itself.

To summarize, MAS applicants were a group of students who performed poorly on standardized tests and who also had a history of poor to average academic performance in high school. Black students were significantly over-represented in this population largely as a result of ACT score patterns.

A substantial percentage of MAS applicants chose not to pursue the admission process. Based on high school grades and ACT scores, the students who did not pursue admission were quite similar to those who did. However, consistent with the MAS policy, of the students who did pursue the testing/interview option, those who performed better on the placement tests were most likely to gain admission. There is no reason to assume that the placement and admission patterns of the non-respondents would have been any different---had these applicants chosen to pursue admission.

For the MAS applicant population, i.e., the lower extreme of the high school grade and ACT score distributions, the conventional wisdom regarding the relation between ACT scores and high school grades, on one hand, and academic preparation, on the other, did not seem to apply. High school grades had no relation either to ACT scores or course placement; even the placement tests had little or no relation to one another. Moreover, most of the differences between demographic groups in the aggregate MAS population did not translate into comparable differences in course placement patterns. This phenomenon was particularly important in light of the use of high school grades and ACT scores as the first and second criteria of the MAS policy---and the use of ACT sub-test scores to disqualify some students.

The foregoing should not imply that most MAS applicants were fully prepared for college level work. Based on placement test results, nearly all required some degree of remediation. However, MAS applicants had placement patterns quite similar to those of other Preparatory Division students and, on occasion, to many students in the College of Arts and Sciences. The actual level of academic preparation of this population could not have been predicted on the basis of high school grades and ACT scores.

Consequently, the MAS policy provided reasonably open access, particularly with its more recent procedural refinements, to those students who chose to pursue admission. However, the MAS process---with its additional requirements and time commitment---was perceived by a great many students as a disincentive.

V. Impact of Pre-Admission Practices

As noted in Section IV, a majority of MAS applicants did not respond when notified of the need to schedule placement testing and an interview. Because of this (refer to Section III), the Preparatory Division, with the cooperation of the Office of Admissions, instituted a pre-admission contact process for Summer/Fall 1987. This pre-admission process was evaluated, initially, in the "Follow-Up Contacts with Fall 1987 Minimum Admissions Students" report (October 1987) and found to be beneficial. Its continuation was recommended on the basis of those findings.

A total of 471 MAS students applied to the University after the implementation of the pre-admission contact process. Of this total, 330 (70.1%) were contacted by letter and 141 (29.9%) could not be contacted. Of the students contacted by letter, 173 (36.7% of the total) were also contacted by telephone. The students who could not be contacted were either late applicants or students on whom no identifying information was received.

Table VII reflects the impact of this process:

Table VII

Pre-Admission MAS Contacts by Admission Status
Summer 1987 - Fall 1989
(Col. %)

	Contacted by Letter and/or Telephone		No Contact	
	N	%	N	%
Pursued Admission	176	53.2	74	48.4
Did Not Pursue Admission	155	46.8	79	51.6
Total	331		153	

The effect of the pre-admission contact process was significant (Chi-square = .00). Female MAS applicants were more likely to be contacted (Chi-square = .03), as were

students with higher ACT scores (Analysis of Variance = .00) and younger students (Analysis of Variance = .01). However, these difference seemed to reflect when students applied rather than any inherent differences between students who were and were not contacted. In other words, students who applied early were most likely to receive encouragement to pursue admission---and females, younger students and students with somewhat higher ACT scores tended to apply early.

The pre-admission contact process had a significant role in increasing the number of MAS applicants who pursued admission, but had only an indirect impact on admissions patterns. In this respect, the process increased both the number of students who gained admission and the number who were denied.

As long as applicants received a letter from the Preparatory Division, the process seemed to serve its intended purpose. The follow-up telephone contact did not enhance the effect of the process in any measurable way.

Apart from unraveling the statistics related to this activity, it must be noted that a large number of applicants chose not to pursue admission even with additional information and an offer of support. There would seem to be a limit to which students' perceptions of the MAS policy, and/or the "message" conveyed by the policy, can be influenced.

VI. Academic Performance and Retention Patterns

Of the 202 MAS applicants admitted to the University, 17 (8.4%) were admitted as non-MAS students. Some were admitted to the Continuing Studies enrollment unit; others were admitted to the Preparatory Division without further restrictions (after re-taking the ACT and improving their scores). Of the 185 MAS students admitted, 164 actually matriculated. This section of the study will examine the performance and retention patterns of these 164 students.

Because past research on academically underprepared students has revealed that first semester performance was a particularly strong predictor of eventual academic "success" or "failure", the distribution of MAS students across academic status categories for students' first and last, or current, semesters in the Division was included in Table VIII. It should be noted that students in the "Transfer/Probation" category fulfilled all pre-college level course requirements, but had below a 2.00 grade average in their college level coursework. Also, several students on "Probation" or in "Good Standing" were dismissed because they had not qualified for transfer at the end of one year.

Table VIII.

Academic Status Distribution of MAS Students
Fall 1986 - Fall 1989 (Col. %)

	End of First Semester		Final/Current Semester	
	N	%	N	%
Withdrew	19	11.6	12	7.3
Dismissed	13	7.9	27	16.5
Probation	69	42.1	56	34.1
Good Standing	36	22.0	20	12.2
Transfer/Probation	6	3.7	19	11.6
Transfer/Limited Load	21	12.8	30	18.3
Total	164		164	

Nearly 30% of the MAS students who completed one or more semesters qualified for admission to the College of Arts and Sciences. Another 46.3% were either still enrolled, or eligible to re-enroll, in the Preparatory Division. These figures were lower than, but compared favorably with, those for Preparatory Division students in general.

These apparently simple distributions mask considerable underlying variability. First semester academic status differed significantly by semester of matriculation (Chi-square = .00). Although similar in most other respects, students admitted before Fall 1988, when the Preparatory Division raised its exit-level Reading requirement (to PREP 095) and the MAS placement criteria in English and Mathematics were lowered, were more likely to transfer to A&S after only one semester. After these policy changes, the number/percentage of first-time MAS students in the "good standing" category increased significantly.

The first semester status distribution was significant, although bi-polar, for age. Older students were more likely to withdraw or be dismissed, but also more likely to transfer (Analysis of Variance = .02). In addition, black students were more likely to complete their first semester on "probation" or in "good standing" (Chi-square = .05). Sex and residence made no difference.

As Table VIII indicates, MAS students' last or current academic status in the Preparatory Division followed a different pattern. The "probation" and "good standing" categories shrank and the "dismissal" and "transfer" categories gained representation. Interestingly, more than one third of the students who withdrew before completing their first semester did return to complete one or more terms. With or without the presence of Fall 1989 MAS students, whose first and final/current semester status were the same, the difference between first semester and final/current semester status was significant (Chi-square = .00). This status distribution did not depart markedly from that of the aggregate Preparatory Division population (with an average in recent years of 7.0% dismissed, 31% on probation, 28% in good standing, 30% in transfer status, and 4% withdrawn).

The first semester differences by matriculation term (Chi-square = .00), age (Analysis of Variance = .02) and race (Chi-square = .03) extended to final/current academic status. Once again, students admitted before Fall 1988 and older students were more likely to achieve transfer status, while black students were more likely to be on "probation" or in "good standing." Sex and residence had no bearing.

MAS students, excluding the Fall 1989 cohort, spent an average of 1.61 terms in the Division. However, the number

of terms enrolled in the Division was inversely related to academic status. Dismissed students were enrolled an average of 2.08 terms, probationary students an average of 2.00 and students in good standing an average of 1.80. Transfer students who entered A&S on probation spent 1.63 terms in the Division and students who transferred on "limited load" status were in the Division for 1.24 terms before transfer.

Initial academic statistics did not vary greatly across final/current academic status categories (Table IX):

Table IX.

Final/Current Academic Status by High School Grades and ACT Scores
Fall 1986 - Fall 1989

	High School	ACT				
	GPA	ENG	MATH	SS	NS	Comp
N	185	163	163	163	163	163
Withdrew	1.84	10.3	6.8	8.8	12.2	9.8
Dismissed	1.78	11.0	7.7	8.5	11.9	9.8
Probation	1.72	10.8	6.6	8.1	12.7	9.8
Good Standing	1.75	10.5	6.7	6.9	12.9	9.8
Transfer/Probation	1.77	10.3	6.1	8.4	11.0	9.1
Transfer/Limited Ld.	1.81	10.9	7.5	8.7	11.8	9.9

Although students who transferred in "limited load" status had generally higher high school grades and ACT scores, these differences were not statistically significant.

Tables X, XI and XII illustrate how final/current academic status was distributed across course placement levels in English, Mathematics and Reading:

Table X

Final/Current Academic Status by English Course Placement
(Col. %)

	Initial Placement						
	ENG 098		ENG 099		ENG 101		Total
	N	%	N	%	N	%	
Withdrew	1	3.2	6	5.7	3	13.6	10
Dismissed	2	6.5	21	19.8	4	18.2	27
Probation	12	38.7	34	32.1	8	36.4	54
Good Standing	8	25.8	11	10.4	0	0.0	19
Transfer/Prob.	5	16.1	12	11.3	2	9.1	19
Transfer/L.L.	3	9.7	22	20.8	5	22.7	30
Total	31		106		22		159

Table XI

Final/Current Academic Status by Math Course Placement
(Col. %)

	Initial Placement						
	MATH 075		MATH 099		MATH 102+		Total
	N	%	N	%	N	%	
Withdrew	8	7.7	2	4.7	0	0.0	10
Dismissed	19	18.3	8	18.6	0	0.0	27
Probation	31	29.8	15	34.9	8	61.5	54
Good Standing	14	13.5	5	11.6	1	7.7	20
Transfer/Prob.	12	11.5	5	11.6	2	15.4	19
Transfer/L.L.	20	19.2	8	18.6	2	15.4	30
Total	104		43		13		160

Table XII

Final/Current Academic Status by Reading Course Placement
(Col. %)

	Initial Placement								
	READ 098		READ 099		PREP 095		Exempt		Total
	N	%	N	%	N	%	N	%	
W	0	0.0	8	8.9	2	4.2	0	0.0	10
D	2	25.0	13	14.4	4	8.3	8	57.1	27
P	2	25.0	33	36.7	18	37.5	1	7.1	54
GS	0	0.0	14	15.6	6	12.5	0	0.0	20
T/P	2	25.0	10	11.1	5	10.4	2	14.3	19
T/LL	2	25.0	12	13.3	13	27.1	3	21.4	30
Total	8		90		48		14		160

As these Tables reveal, placement in the lower level Division courses was not an insurmountable barrier to the achievement of transfer eligibility. Conversely, neither placing in nor "testing out" of the higher level Division courses assured better performance. However, placement in any one of the basic level courses did extend the length of time necessary to complete all course requirements.

Only in Reading were the differences in academic status by course placement statistically significant (Chi-square = .01). An unusually high percentage of the MAS students who "tested out" of Reading were dismissed and a relatively high percentage of READ 099 and PREP 095 students were on "probation." Moreover, although black students were no more likely to be placed in READ 098 and READ 099 than other MAS students, placement in either of these courses lessened their likelihood of transferring. This difference in Reading accounted for much of the difference between the status distributions of black and white students.

Although difficult to quantify, student "motivation" (or "attitude") was strongly related to the academic performance of MAS students (Table XIII):

Table XIII.

Assessed Motivation and Academic Performance
Fall 1988 - Fall 1989

	First Semester	Second Semester	Final/Current Semester
N	74	23	74
Withdrew	5.78	5.00	4.83
Dismissed	5.00	5.00	5.00
Probation	5.58	5.90	5.66
Good Standing	6.43	7.00	6.13
Transfer/Prob.	7.00	6.83	6.89
Transfer/L.L.	7.20	8.50	7.57
Group Mean	5.95	6.35	5.95

As the assessed level of motivation rose(note the 0 - 9 point scale described on page 17 and in Table VI), academic performance improved. While this pattern was nearly significant with respect to first semester performance, it was decidedly significant for second and final/current semester performance (Analysis of Variance = .00).

Table XIV reflects the retention patterns of MAS students by semester of matriculation. A student was considered to have been retained if he/she was enrolled for Fall 1989.

Table XIV.

Retention Patterns of MAS Students by Semester of Matriculation
(Row %)

Term Admitted	Enrolled N	Enrolled %	Not Enrolled N	Not Enrolled %	Total
Fall 1986	5	23.8	16	76.2	21
Spring 1987	2	25.0	6	75.0	8
Fall 1987	13	40.6	19	59.4	32
Spring 1988	3	60.0	2	40.0	5
Fall 1988	24	58.5	17	41.5	41
Spring 1989	7	53.8	6	46.2	13
Total	54	45.0	60	55.0	120

As with retention statistics in general, the percentage of each MAS cohort still enrolled decreased over time. This rate of retention, while respectable, was somewhat lower than that of Preparatory Division students overall.

There were no differences in retention rate or pattern by age, race, sex, residence, high school grades, ACT scores or Mathematics course placement. However, both English (Chi-square = .03) and Reading (Chi-square = .05) placement were significantly related to retention---with ENG 098, READ 098 and PREP 095 students more likely to have returned for Fall 1989.

Academic performance was also significantly related to retention (Chi-square = .00 for both first and final/current semester academic status). Students who "started off" well and, particularly, students who eventually transferred, were more likely to be enrolled. Despite this predictable relationship between performance and retention, given the one year timeframe imposed by the policy, the academic and demographic characteristics which were related significantly to performance were not related significantly to retention. Student "motivation" or "attitude" seemed to have been the

one factor which, more than any other, "connected" these outcome measures.

To summarize, once admitted to the University, MAS students had a reasonable probability of satisfying the academic requirements attached to their admission. MAS students did not perform quite as well, in the aggregate, as other Preparatory Division students, but the differences in performance patterns between MAS and other Division students were not related to differences in high school grades, ACT scores or course placement levels. It is probable that MAS requirements, particularly the one year timeframe, contributed to these performance differences. Moreover, as noted above, student motivation, however unscientifically it was measured for the purpose of this study, was the one factor which linked performance and retention---independent of all other variables.

The first year retention rate (58.5%) of MAS students compared favorably to that of other Division students (55%-60%) and University undergraduates in the aggregate (65.6%). Although the retention rates of the early MAS cohorts were artificially low (since students could be dismissed after one year, regardless of their overall performance), a solid percentage of MAS students still returned for their second, third and fourth years of enrollment.

VII. Impact of Post-Admission Support Services

In July 1988, the Preparatory Division inaugurated a special post-admission support program for MAS students. This program was designed to provide more frequent and intrusive academic advising and counseling, and more intensive tutorial, referral, and follow-up services to all MAS students enrolled in the Division, i.e., more of the same types of services available to all Division students. Under this program, MAS students were assigned to one Preparatory Division Counselor who was responsible for delivering and/or coordinating the delivery of the aforementioned services. This additional support was believed to be crucial to the performance of MAS students admitted under the revised testing guidelines.

Table XV illustrates the relationship between the frequency of academic counseling/advising interaction and the academic performance of MAS students:

Table XV.

Academic Performance and Mean Counseling Attendance
Fall 1986 - Fall 1989

	First Semester C/A and Status	Second Semester C/A and Status	First Semester C/A and Last Status	Second Semester C/A and Last Status
N	163	68	163	68
Withdrew	2.89	1.33	2.83	----
Dismissed	3.62	2.50	3.44	1.93
Probation	3.99	4.09	3.91	4.43
Good St.	4.03	6.00	3.65	5.75
Transfer/P.	4.17	2.67	4.89	3.15
Transfer/LL.	4.33	3.75	4.20	3.75
Group Mean	3.89	3.63	3.89	3.63
ANOVA sign.	.41	.11	.14	.03

As this Table reveals, the significance of formal counseling/advising contacts was related to the length of time MAS students spent in the Division. Overall, MAS students averaged between three and four formal counseling/advising contacts each semester and, of the students who spent more than one semester in the Division, those who maintained frequent contact with a Counselor tended to perform somewhat better.

The special efforts initiated in Fall 1988 had a significant effect on increasing the frequency of contact (Analysis of Variance = .00)---from an average of 2.78 contacts per student per semester (Fall 1986 to Spring 1988) to an average of 4.62 contacts per student per semester (Fall 1988 to Fall 1989). Moreover, although more than four contacts per semester did not enhance academic performance, fewer than four contacts per semester seemed to be closely associated with poor performance. Consequently, ensuring that MAS students received adequate counseling/advising support was one of the key factors related to their academic performance.

Age, race, sex, residence, high school grades and ACT scores had no bearing on the utilization of counseling/advising services. Interestingly, MAS students' "motivation" was unrelated to counseling contact as well. However, for MAS students enrolled in the Division for a second semester, initial placement in ENG 098 was related significantly to the use of counseling/advising support (Chi-square = .00).

While all MAS students received some counseling support, tutorial support was distributed quite unevenly across this population. Because all MAS students were enrolled in (usually) two or more pre-college level courses, students were less likely to use the University Tutoring Program---which concentrated, primarily, on supporting students in general education level courses. Table XVI reflects this limited use of tutorial support:

Table XVI.

Academic Performance and Mean Tutoring Attendance
Fall 1986 - Fall 1989

	First Semester Tut. and Status	Second Semester Tut. and Status	First Semester Tut. and Last Status	Second Semester Tut. and Last Status
N	164	64	164	64
Withdrew	.68	.00	.00	---
Dismissed	.00	.00	.26	.00
Probation	.65	.47	.89	.89
Good St.	1.22	3.40	1.20	2.67
Transfer/P.	.00	.64	.74	.58
Transfer/LL.	1.52	.83	1.30	.83
Group Mean	.82	.69	.82	.69
ANOVA sign.	.17	.01	.25	.15

MAS students averaged less than one tutoring session per semester. However, this low average was more a reflection of the number of students who used tutoring than of the number of times tutoring was used by the MAS population. For example, 131 (79.9%) students did not schedule any tutoring, while the remaining 33 (20.1%) students met with a tutor between one and eight times in a given semester. Students who used tutoring in their first semester were likely to use tutoring in their second or third semesters (if they remained enrolled in the Division).

The special support program did result in an increase in the use of tutoring services---from an average of .57 contacts per semester (Fall 1986 through Spring 1988) to .98 contacts per semester (Fall 1988 through Fall 1989). Based on these data, however, it was clear that a large number of MAS students did not receive adequate tutoring support, although there were insufficient data to determine the optimum level of assistance needed.

The use of tutoring was not related significantly to any of the demographic, academic or placement variables. Moreover, as with counseling/advising contacts, student motivation was not a significant factor.

The post-admission support program, much as the pre-admission contact process, benefited the MAS population. Ensuring that MAS students received adequate counseling/advising support was a crucial factor in relation to academic performance. Tutoring utilization was more problematic since many of the students had difficulty in pre-college level courses for which support was not always available. Continuing the present approach in counseling/advising, at least to the point of ensuring one formal contact per student per month, would seem appropriate on the basis of these findings. Devising a <u>full spectrum</u> of tutorial and instructional support services would be a meaningful enhancement.

VIII. Predicting Admission, Academic Performance, and Retention

A number of assumptions, many with a history of impacting some student groups adversely, have influenced the development of the minimum admissions policy and implementation process. Ultimately, these assumptions can be tested only by examining whether or not the factors which are presumed to indicate academic preparation, and to influence admission, performance, and retention have any significant (as opposed to artificial or coincidental) relation to these outcome measures. Apart from testing such assumptions, this section will also seek to identify what combination(s) of demographic, academic, placement and service utilization factors have the power to predict or explain admission, performance and/or retention patterns---or the power to discriminate between the MAS students who fared well and those who fared poorly.

To this point, the MAS population has been described and examined through the use of a variety of univariate statistical analyses. This approach has many limitations. For example, if black students were more likely to pursue admission, but female students were not, accounting for the admission decisions of black females is a problem which univariate analysis cannot solve satisfactorily.

Conceptually, the two multivariate statistical procedures employed in this section, multiple regression and discriminant analysis, are somewhat different. Multiple regression measures the ability of one or more independent variables to predict, or account for the variance in, the values of a dependent variable. Discriminant analysis measures the ability of a set of variables to "discriminate" between groups of cases defined on the basis of mutually exclusive categories and to predict the category, e.g., "pursued admission" or "did not pursue admission", into which a specific case will fall. Because most of the outcome measures under study have been defined as categorical variables, rather than a distribution of scores or values, discriminant analysis will be employed most often.

Table XVII summarizes the results of an attempt to discriminate between the MAS applicants who pursued admission and those who did not. Only information which could have been obtained from a student's application was used in this analysis:

Table XVII.

Discriminant Analysis: MAS Admission Status
(N = 436)

Group Variable: 1 = Pursued Admission
2 = Did not Pursue Admission

Discriminant Function Variables	Coefficients	Sign.
Race	.4875	.0004
Sex	.3538	.0004
Residence	.2345	.0007
High School GPA	.3840	.0011
ACT English	.5800	.0028
Function		.0007

% of Cases Classified/Predicted Correctly = 57.6%

Discriminant function variables were selected from the variable pool referenced above based on their ability to minimize the unexplained variation between between groups. The sum of the products of these discriminant function coefficients, multiplied by the values assigned to the original variables for a specific student, resulted in a value which predicted the category in which each MAS student would fall. The sign of the coefficient indicated the direction of the relationship---based on how values were defined for original variable (e.g., 1 = ENG 098, 2 = ENG 099, etc.). By comparing the predicted value with the actual value, i.e., whether or not the student actually pursued admission, the significance of the function and the percentage of cases which it classified correctly could be determined.

As Table XVIII indicates, a discriminant function which included race, sex, residence, high school grades and ACT English score was statistically significant. Although significant, this function classified only 57.6% of the cases correctly, indicating that the MAS applicants who pursued admission were similar in many respects to those who did not and confirming some of the earlier findings of this study (see Section IV), i.e., that blacks, males, students with higher ACT scores (particularly females), and students

with slightly lower high school grades were more likely to pursue admission. Residence (local or in-state), which was not significant alone, had more discriminatory power in the presence of these other variables.

While by no means conclusive, this analysis does provide useful information regarding which MAS students, under current University policies and practices, were most likely to pursue admission---and, conversely, which students may have required more, or different types of, encouragement. Given the large number of applicants who have not pursued admission, such information may prove useful to future planning efforts.

Academic performance has been measured in this study using end of semester status categories. Both first semester academic status and final/current Preparatory Division status were found to be related significantly to numerous other factors. Table XVIII summarizes several multiple regression procedures which defined either first of final/current status as a dependent variable and used increasingly diverse pools of independent variables:

Table XVIII.

Predicting Academic Performance: Multiple Regression

Variables	Multiple R	R-Square	Sign.(F)
1. Demographic, Academic, Placement, Motivation (N = 61)	.47041	.22128	.5119
2. All variables, including Counseling and Tutoring (N = 60)	.50198	.25199	.5469
3. Demographic, Academic, Placement (N = 135)	.29211	.08533	.5804

As the results suggest, neither first nor final/current Division academic status could be predicted with any degree of precision. None of the regression procedures yielded significant results. Moreover, similar procedures using actual University grade point averages were even less meaningful---suggesting that earning "high" grades, while desirable, was not as strongly related to the academic progress

of MAS students as was completing requirements with acceptable grades.

These same sets of variables were used in a discriminant analysis. By collapsing academic status categories into two group variables, i.e., one reflecting "poor performance" (dismissal and probation) and the other reflecting "good performance" (good standing or transfer), and eliminating the "withdrawal" category, it was possible to generate discriminant functions which had significant predictive power (Table XIX):

Table XVII.

Discriminant Analysis: Academic Performance
(N = 71)

First Semester

Group Variable: 1 = Dismissal or Probation
2 = Good Standing or Transfer

Discriminant Function Variables	Coefficients	Sign.
Motivation	-.8795	.0012
Math Placement Level	.7145	.0013
ACT Social Science	.5569	.0004
English Placement Level	.3619	.0004
Tutoring Attendance	-.2989	.0006
Function		.0006

% of Cases Classified/Predicted Correctly = 77.3%

Final/Current Semester

Motivation	.8945	.0020
Reading Placement Level	-.5780	.0008
Math Placement Level	-.5146	.0005
Tutoring Attendance	.3479	.0005
High School GPA	.4064	.0005
Race	.4550	.0005
English Placement	-.2982	.0007
Function		.0007

% of Cases Classified/Predicted Correctly = 78.2%

Although the number of cases was low in each analysis, the functions were significant and the percentage of cases classified correctly was reasonably high. Few of the discriminating variables were among the initial demographic and academic statistics available at the time of application. In other words, most of the factors which distinguished between the MAS students who performed poorly and those who performed well were either "produced" by the MAS process (i.e., placement levels, assessed motivation) or emerged after matriculation (i.e., tutoring attendance). This finding supports the provisional conclusions noted in Sections VI and VII, i.e., that academic performance of MAS students cannot be assumed or predicted on the basis of such initial academic statistics. Motivation, course placement and the use of support services were far more significant.

This same approach was employed in seeking to discriminate between the MAS students who were retained and those who were not, i.e., the students who did and did not enroll for Fall 1989 (excluding first-time Fall 1989 students):

Table XX.

Discriminant Analysis: Retention
(N = 134)

Group Variable: 1 = Retained
2 = Not Retained

Discriminant Function Variables	Coefficients	Sign.
Final/Current Division Status	-.5935	.0000
English Placement	.4142	.0000
Residence	-.2323	.0000
ACT Mathematics	.4587	.0000
ACT English	.5201	.0000
ACT Natural Science	.4304	.0000
High School GPA	.3079	.0000
First Semester Status	-.4024	.0000
ACT Composite Score	-.4379	.0000
Function		.0000

% of Cases Classified/Predicted Correctly = 78.8%

As this Table illustrates, far more variables satisfied the statistical criterion for inclusion in the discriminant function and nearly 80% of all cases could be classified correctly. While academic performance could be predicted using a somewhat "non-traditional" array of variables, retention could be predicted quite well using a set of variables "traditionally" associated with performance, i.e., ACT scores and high school grades.

The relationship between the academic performance and retention of MAS students became more complex and interesting at this level. Academic progress, in and of itself, did not increase the probability of retention---unless certain other factors were present. Moreover, there were factors beyond the scope of this study which may have been equally as significant in relation to both performance and retention, e.g., student/family income, employment status and many others.

Of the demographic variables, only residence was selected for this discriminant function, although residence had no direct (univariate) relation to retention. Race, which figured prominently in the analysis of performance, did not prove significant with respect to retention. Age and sex did not contribute to the analyses of either performance or retention.

Other analyses (not shown) included "motivation" and service utilization in the variable pool. These analyses were also significant and produced sets of discriminating variables similar to those reported in Table XIX. These analyses permitted the correct classification of, at most, 63% of all cases. However, because "motivation" was not assessed until July 1988, the number of cases suitable for analysis was smaller. Had this same information been available for all MAS students, it is likely that the discriminant functions for performance and retention would have resembled one another more closely.

As tests of the assumptions underlying the minimum admissions policy and process, and the use of standardized test scores as admission criteria, these analyses produced mixed results. Pursuit or non-pursuit of admission could not be predicted with a high degree of accuracy. Performance and retention could be predicted rather well.

There were no combinations of factors or characteristics which were associated invariably with the pursuit or non-pursuit of admission, good or poor academic performance, or retention or attrition. There were, however, combinations of factors which indicated a higher probability of pursuing admission, making academic progress and remaining

enrolled. The presence, strength and variety of these factors---along with the more basic fact that MAS students progressed and persisted at all (which would not have been predicted using traditional measures)---challenge the assumptions regarding the existence of a positive linear (or causal) relationship between high school grades, standardized test scores and academic performance in college. If such assumptions do not hold for students at the lowest extreme of the grade and ACT score distributions, their application to <u>any</u> student should be questioned.

IX. Conclusion and Summary

Based on the findings of this study, the University's decision to end open admissions did not close this institution to academically disadvantaged students, but did create a number of obstacles to their admission. Under the minimum admissions standards, students with neither a 2.25 high school grade average, or better, and/or an ACT Composite score of 12, or better, became a "special category" ---subject to additional admissions requirements and a different admissions process. The requirements and conditions attached to this "special category" deterred many MAS applicants from pursing admission to the University. Even with special efforts to encourage students to proceed with the testing/interview option, nearly half of all MAS applicants failed to respond.

The most significant demographic difference between MAS applicants and the University's typical applicant pool was the over-representation of black students. Black students were 49.6% of the MAS applicants and 49.0% of the MAS students admitted to the University, despite being less than 10% of the University's undergraduate enrollment. Consequently, the MAS policy and process had, and continue to have, far-reaching implications with respect to black students' access to the University and to the University's efforts to raise the enrollment, retention and graduation rates of black students.

The criteria of the minimum admissions policy limited the range within which the high school grades and ACT scores of MAS students could fall, i.e., by policy definition, students with grade averages or ACT scores above the cut-offs could not have been MAS students). Within this comparatively narrow range, there was considerable variability. However, there were no significant relationships between and among these initial academic statistics and the placement test performance of MAS students. For this population, the "traditional" indicators of academic potential and/or preparation were misleading at best. In this respect, MAS students differed somewhat from the larger Preparatory Division population for which placement tests are better, but not consistently reliable, indicators of preparation. This result strengthens the rationale for testing all MAS applicants and denying no student on the basis of ACT sub-test scores alone.

Roughly one third of all MAS applicants were admitted to the University as MAS students; a few others either re-took the ACT or entered through the Continuing Studies enrollment unit. After matriculation, MAS students progressed academically at a percentage rate slightly lower

than that of other Preparatory Division students. However, placement in the most basic pre-college level courses (ENG 098, MATH 075, and READ 098) was not an obstacle to students' academic progress. Moreover, the use of adequate counseling/advising and tutorial support generally enhanced the performance of MAS students.

MAS students were retained at a rate comparable to that of other Division students and a considerable number of MAS students were still progressing through the University (some in their third and fourth years). Academic performance was closely related to retention, but this relationship was complex, i.e., it was not so much performance itself which predicted retention, but rather some of the variables with contributed to, or were components of, performance.

In conclusion, the University of Louisville's general standards for admission represent a delicate balance between opportunity and exclusion. Over time, standards and implementation practices have evolved which maximize the probability that MAS students with adequate academic potential can enter the University---if they pursue admission and if they have the opportunity to take the placement tests. Maintaining this balance and strengthening pre- and post-admission support programs are recommended on the basis of these findings.

J. Blaine Hudson, Ed.D.

March 5, 1990

References

Altbach, Philip G., and Kelly, Gail P. Education and Colonialism. New York: Longman, 1978.

American Council on Education. A Fact Book on Higher Education, 1976. Washington, D.C.: American Council on Education, 1976.

American Council on Education. Minorities in Higher Education: Seventh Annual Status Report. Washington, D.C.: American Council on Education, 1988.

Bell, Daniel. The Coming of Post-Industrial Society: A Venture in Social Forecasting. New York: Basic Books, 1976.

Binet, Alfred, and Simon, Theodore. The Development of Intelligence in Children (The Binet-Simon Scale). Vineland, N. J.: Training School at Vineland, 1916.

Blau, Peter, and Duncan, Otis D. The American Occupational Structure. New York: John Wiley, 1967.

Bowles, Samuel. "Schooling and Inequality from Generation to Generation." Journal of Political Economy, 80, 1972.

Bowles, Samuel, and Gintis, Herbert. Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life. New York: Basic Books, 1976.

Bond, Horace M. "Intelligence Tests and Propaganda." The Crisis, 28, 1924.

Bond, Horace M. The Education of the Negro in the American Social Order. New York: Octagon Press, 1934.

Bond, Horace M. "What the Army 'Intelligence' Tests Measured." Opportunity, 2, 1924.

Brigham, Carl C. A Study of American Intelligence. Princeton, N. J.: Princeton University Press, 1923.

Brint, Steven, and Karabel, Jerome. The Diverted Dream: Community Colleges and the Promise of Educational Opportunity in America, 1900-1985. New York: Oxford University Press, 1989.

Burt, Cyril. "The Genetic Determination of Difference in

Intelligence: A Study of Monozygotic Twins Reared Together and Apart." British Journal of Psychology, 57, 1966.

Burt, Cyril. "Inheritance of General Intelligence." American Psychologist, 27, 1972.

Carnegie Commission on Higher Education. A Chance to Learn. New York: McGraw-Hill, 1970.

Carnegie Commission of Higher Education. Higher Education: Who Pays? Who Benefits? Who Should Pay? New York: McGraw-Hill, 1973.

Coleman, James S., et. al. Equality of Educational Opportunity. Washington, D.C.: U. S. Government Printing Office, 1966.

Conant, James B. Shaping Educational Policy. New York: McGraw-Hill, 1964.

Cross, K. Patricia. Beyond the Open Door. San Francisco: Jossey-Bass, 1971.

Crummell, Alexander. The Attitude of the American Mind Toward the Negro Intellect. Washington, D.C.: The American Negro Academic, Occasional Papers, No. 3, 1898.

Delpit, Lisa D. "The Silenced Dialogue: Power and Pedagogy in Educating Other People's Children." Harvard Educational Review, 58, 1988.

Dobzhansky, Theodosius. Genetic Diversity and Human Equality. New York: Basic Books, 1973.

DuBois, W. E. B., review of "The Mental Capacity of the American Negro," in Journal of Philosophy, 11, 1914.

DuBois, W. E. B. The College-Bred Negro. Atlanta: Atlanta University Press, 1900.

DuBois, W. E. B. The College-Bred Negro American. Atlanta: Atlanta University Press, 1910.

Equal Educational Opportunity: More Promise than Progress. Washington, D.C.: Institute for the Study of Educational Policy, Howard University, 1978.

Ferrin, Richard I. A Decade of Change in Free-Access Higher Education. New York: College Entrance Examination Board, 1971.

Gardner, John W. Can We Be Equal and Excellent Too?

New York: Harper and Row, 1971.

Halstead, D. Kent. Statewide Planning in Higher Education. Washington, D.C.: Department of Health, Education and Welfare, 1974.

Jencks, Christopher, et. al. Inequality: A Reassessment of the Effect of Family and Schooling in America. New York: Harper and Row, 1972.

Jencks, Christopher, and Riesman, David. The Academic Revolution. Chicago: The University of Chicago Press, 1968.

Jensen, Arthur R. "Estimation of the Limits of Heritability of Traits by Comparison of Monozygotic and Dizygotic Twins." Proceedings of the National Academy of Science, 58, 1967.

Jensen, Arthur R. "How Much Can We Boost IQ and Scholastic Achievement." Harvard Educational Review, 39, 1969.

Jordan, Winthrop D. White Over Black: American Attitudes Toward the Negro, 1550-1812. Chapel Hill: University of North Carolina Press, 1968.

Kamin, Leon J. "Denying that Proof Exists that IQ Test Scores are Hereditary." South Today, 4, 1973.

Karabel, Jerome. "Community Colleges and Social Stratification." Harvard Educational Review, 42, 1972.

Karabel, Jerome, and Halsey, A. H. (Eds.) Power and Ideology in Education. New York: Oxford University Press, 1977.

Long, Howard. "Race and Mental Tests." Opportunity, 1, 1923.

Mercer, Jane R. "Test 'Validity,' 'Bias,' and 'Fairness': An Analysis from the Perspective of the Sociology of Knowledge." Interchange, 9, 1979.

McConnell, T. R. A General Pattern for American Public Higher Education. New York: McGraw-Hill, 1962.

Morris, Lorenzo. Elusive Equality: The Status of Black Americans in Higher Education. Washington, D.C.: Howard University Press, 1979.

Moynihan, Daniel P. "The Schism in Black America." The Public Interest, 1972.

Miller, Carol A. "Minority Student Achievement: A

Comprehensive Perspective. Journal of Developmental Education, 13, 1990.

Monroe, Charles R. Profile of the Community College. San Francisco: Jossey-Bass, 1976.

Nasaw, David. Schooled to Order: A Social History of Public Education in the United States. New York: Oxford University Press, 1979.

Persell, Caroline H. Education and Inequality: The Roots and Results of Stratification in America's Schools. New York: The Free Press, 1977.

President's Commission on Higher Education. Higher Education for American Democracy. Vol. I. Washington, D.C.: Government Printing Office, 1947.

Price, J. St. Clair. "Negro-White Differences in General Intelligence." Journal of Negro Education, 3, 1934.

Reyes, Maria, and Halcon, John J. "Racism in Academia: The Old Wolf Revisited." Harvard Educational Review, 58, 1988.

Smith, Donald H. Admission and Retention Problems of Black Students at Seven Predominantly White Universities. Washington, D.C.: National Advisory Committee on Black Higher Education and Black Colleges and Universities, 1980.

Spring, Joel. The Sorting Machine: National Educational Policy Since 1945. New York: Longman, 1976.

Terman, Lewis. The Measurement of Intelligence. Boston: Houghton Mifflin, 1916.

Thomas, William B. "Black Intellectuals' Critique of Early Mental Testing: A Little-Known Saga of the 1920s." American Journal of Education, 90, 1982.

Thompson, Charles H. "The Conclusion of Scientists Relative To Racial Differences." Journal of Negro Education, 3, 1934.

Touraine, Alain. The Academic System in American Society. New York: McGraw-Hill, 1974.

Weinberg, Meyer. A Chance to Learn: A History of Race and Education in the United States. London: Cambridge University Press, 1977.

Weinberg, Meyer. The Search for Quality Integrated

Education: Policy and Research of Minority Students in School and College. Westport, Conn.: Greenwood Press, 1983.